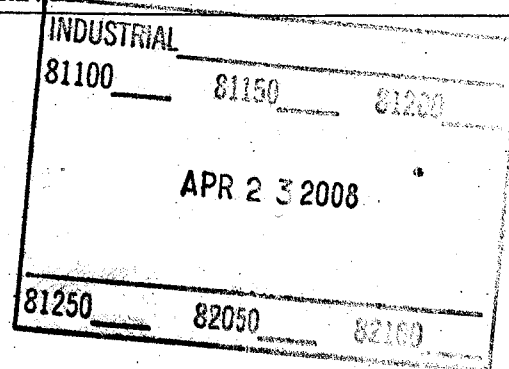


PASSAIC VALLEY SEWER  
APPLICATION FOR A SEWER USE PERMITSECTION A

1. Company Name: Lummus Technology
2. Permit Number if applicable: 02210004
3. Location: 1515 Broad Street, Building C  
Bloomfield, NJ Zip Code: 07003
4. Mailing Address: Same  
Zip Code: \_\_\_\_\_
5. Person to contact concerning information provided in this application:  
Name of Contact Official: MaryAnne Link  
Title: Health, Safety Environmental & Facilities Engineer Phone No.: 973-893-2867  
Address: 1515 Broad Street, Bloomfield, NJ Zip code: 07003
6. Number of Employees – Full Time: 50 Part Time: -0-  
Number of Work Days Per Year: 250  
Number of Shifts Per Day: 1 Normal
7. If property is owned indicate block and lot number(s): \_\_\_\_\_  
Assessed Value: \_\_\_\_\_
8. If property is rented indicate name and address of owner: 1515 Broad Street L.L.C.  
15 Maple Avenue, Morristown, NJ 07960
- Total square feet rented: 44,000
9. List NJPDES Permit Number if applicable, NJ0052078 and  
Name of receiving Body of Water entered Third River



## SECTION B

WATER DATA

10. Water Source: (Circle all appropriate answers)

Purchased Y - ~~N~~Well ~~Y~~ - N If Y, is it metered Y - NRiver ~~Y~~ - N If Y, is it metered Y - N11. Name of purchased water supplier: Bloomfield TownshipList all Account #'s: 9882010, 9882200 (Firewater only)12. Water Received: From Mo. March Yr. 2007 Through Mo. February Yr. 2008

(\* Next to a figure means it is estimated).

	<u>PURCHASED</u>	<u>WELL</u>	<u>RIVER</u>	<u>TOTAL</u>
1 <sup>st</sup> Qtr.	1,717,200	0	0	
2 <sup>nd</sup> Qtr.	1,270,400	0	0	
3 <sup>rd</sup> Qtr.	458,500	0	0	
4 <sup>th</sup> Qtr.	556,400	0	0	

**GRAND TOTAL** 4,002,500

Report in gallons

13. Water Use and Disposition (\*Next to a figure means it is estimated).

	Gallons Sanitary/Combined Sewer	Discharged Stormwater/River/ Ditch	Gallons Used Other
Sanitary service only	125,000*	0	
Process waste waster	368,400*	0	
Cooling water	3,315,200*	0	
Evaporation			193,900*
Contained in the product			0
Other (describe)			0

**GRAND TOTAL** 4,002,500

SECTION B (continued)

14. Process wastewater which is discharged as above is metered as follows:

To the Separate Sanitary Sewer	Y - <del>X</del>	*Inlet metering only,
To the Combined Sewer	<del>X</del> - N	Refer to attached
To the Storm Sewer	<del>X</del> - N	Figure 1.
River or Ditch	<del>X</del> - N	

15. Waste hauler information: List all firms and/or independent contractors used to remove process waste or sludge from this facility.

Contractor	Address	Icc #	Waste type handled
Cycle Chem Inc.	650 Industrial Drive Lewisberry, PA 17339		Aqueous Hazardous Waste, lab packs
Giant Reserve Recovery	755 Industrial Road Sumter, SC 29150		Ignitable Hazardous Waste
Chem Cycle Inc.	Elizabeth, NJ		Lab packs of unused chemicals

SECTION COPERATIONAL CHARACTERISTICS

16. Discharge of Industrial Waste is continuous X  
or intermittent \_\_\_\_\_ each operating day.  
If the discharge is intermittent, it occurs between the following hours: N/A
17. Brief description of Manufacturing or other activity performed: Engineering design services,  
research and development, laboratory and pilot plant operations.
- List SIC CODE #: 8711
18. Principal Raw Materials used: Petroleum hydrocarbons for pilot plant tests and process  
development laboratories, sodium hydroxide, (20% solution) for air discharge scrubber.
19. Principal Products or Services: Petroleum hydrocarbon samples from pilot plant test  
and process development operations.

20. Describe seasonal variations, if significant, giving dates, volumes, rates, hours, etc.  
 Include variations in product lines which affect waste characteristics: N/A
- 
- Does this facility shutdown for vacation(s)? No If so, is it basically the same time each year. \_\_\_\_\_ Provide dates usually shutdown \_\_\_\_\_

### SECTION D

#### MONITORING

21. Describe any pretreatment process or effluent monitoring system in use:
- Outlet 02210004-1 No pretreatment, monthly sampling for BOD, TSS, hydrocarbons (SGT-HEM) and local limits (metals)
- 
- Outlet 02210004-2 No pretreatment or monitoring - Sanitary sewage only.
- 
- Outlet \_\_\_\_\_
- 
22. Sampling information:

<u>Outlet</u>	<u>Contains Industrial Waste</u>	<u>Sampler Type</u>	<u>Refrigerated</u>
02210004-1	Yes	ISCO 3710 VR composite Sampler	Yes
02210004-2	No	None	N/A

SECTION D (continued)

## 23. Volume Information:

\*Inlet metering only

<u>Outlet</u>	<u>Daily Flow (Gallons)</u>	<u>Metered (Y - N)</u>	<u>Type</u>	<u>Date</u>
02210004-1 Meter #1		Y	Non-resettable Turbine	3/2000
02210004-1 Meter #2		Y	Non-resettable Turbine	3/2000
02210004-2 Meter #3		Y	Non-resettable Turbine	9/2002

24. Frequency of calibration of each flow meter: as required

## 25. Attach plot plan of the property showing:

- (a) all existing or proposed sewer and drain lines (including outlets to a storm sewer, river or ditch);
- (b) sample point(s); Monitoring or Pretreatment Equipment; Incoming meter(s); Well meter(s); Internal meter (s); Flowmeter(s).
- (c) details of the connection(s) to the municipal (or PVSC) sewer, including the distance and direction of each connection from the nearest street intersection.

Refer to attached Figure 1.

**SECTION E****ANALYSIS OF INDUSTRIAL WASTE**

26. Analysis for Industrial Waste must be a proper sample taken for each outlet.

OUTLET NO. \_\_\_\_\_

Report to the nearest unit: XX. Except where indicated with (1) Example: 15 mg/l		Report to the nearest hundredth: 0.XX Except where indicated Example: 0.36 mg/l	
<u>Parameter</u>	<u>Value</u>	<u>Parameter</u>	<u>Value</u>
*Radioactivity (PL-1)		*Antimony (Sb)	
Total Solids	150	*Arsenic (As)	
*Volatile Solids		*Boron (B)	
Total Suspended Solids	< 3	Cadmium (Cd)	< 0.01
*Volatile Suspended Solids		*Chromium Total (Cr)	
(3) SGT-HEM (EPA Method 1664 Rev. A)		Copper (Cu)	< 0.02
Biochemical Oxygen Demand (BOD)	< 4	*Iron (Fe)	
		Lead (Pb)	< 0.01
Chemical Oxygen Demand (COD)	< 5	*Cyanide (Cn)(3)	
		Mercury (Report to 0.XXX)	< 0.001
*Total Organic Carbon (TOC)	1.9	Nickel (Ni)	< 0.01
		*Selenium (Se)	
pH(standard unit range)	6.65	*Silver (Ag)	
(1) Ammonia as N	< 0.2	*Tin (Sn)	
(1)(3) Total Oil & Grease	< 9.4	Zinc (Zn)	< 0.03
*(1) Sulfide		*Phenol	
*(1) Ortho Phosphates as P		*Pesticides (Report to 0.XXX)	
*(1) Kjeldahl N as N			
*(2)(3) TTO (Report to 0.XXX)		*TTVO (Report to 0.XXX)(3)	

**FOOTNOTES:**

- (1) Report results to the nearest tenth, i.e., 1.6 mg/l.  
(\* Analyze for this if reasonably expected to be present in the discharge unless otherwise exempted.
- (2) See instructions.
- (3) Grab sample required

ev: 1/87  
8/89  
7/90  
9/94  
8/95  
11/95  
07/98  
09/05

SECTION E (continued)

Samples collected by: Donald Traylor; Lummus Technology

1515 Broad Street, Bloomfield, NJ 07003

3/6/08

Date: 3/20/08

MaryAnne Link; Lummus Technology

4/14/08

3/7/08

Sample analyzed by: Aqua Pro Tech Laboratories

Date: 3/24/08

Lummus Technology

4/14/08

Products being manufactured when sample was collected: No product manufacturing at site; normal laboratory and pilot plant operations.

27. Who performs the analyses of the samples for User Charge? \_\_\_\_\_

Aqua Pro Tech Laboratories

1275 Bloomfield Avenue, Fairfield, NJ 07004

28. Is the Laboratory certified by NJDEP to conduct all the analyses? Y - ~~N~~ \_\_\_\_\_

Lab # NJDEP07010 Aqua Pro Tech Laboratories

Lab # NJDEP07577 Lummus Technology pH only

29. Who performs the analyses of the samples for the Pretreatment Parameters? \_\_\_\_\_

N/A

If monitoring has not commenced for Pretreatment, indicate Laboratory you plan to use. If unknown, so state:

N/A

30. Is the Laboratory certified by NJDEP to conduct all the required Pretreatment analyses?

Y - N N/A

31. Based upon knowledge of materials and processes used at this facility check the appropriate box that best describes the potential that a Priority Pollutant, listed on Tables 1,2 & 3 is present in your discharge.

SECTION FPRETREATMENT

32. Industrial Category: N/A (9999)  
 Subpart (s): N/A
33. Compliance date(s): N/A
34. Is facility in compliance? Yes If not, and if compliance date has passed, explain actions being taken to get into compliance: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
35. Date Baseline Monitoring Report (BMR) submitted to PVSC: -
36. Compliance schedule submitted: N/A  
 If yes is facility on schedule? \_\_\_\_\_ Explain if compliance date will not be met:  
 \_\_\_\_\_
37. Does this facility come under the Resource Conservation and Recovery Act (RCRA)?  
 If yes, describe Yes; Hazardous Waste Generator
38. Does this facility have a Spill Prevention Control and Countermeasures (SPCC) plan?  
 If yes, describe Yes; per RCRA & NJPDES requirements
39. Has NJDEP or EPA ever cited this facility for a violation of State or Federal Regulations for the nature of its wastewater discharge? Y - N No
40. Is this facility under an ISRA Clean up? No If so, has a plan been approved by NJDEP: \_\_\_\_\_  
 \_\_\_\_\_  
 Is there any plan to discharge groundwater?  
 \_\_\_\_\_  
 \_\_\_\_\_



**CERTIFICATION\*:**

The information contained in this application is familiar to me and, to the best of my knowledge and belief, such information is true, complete and accurate.

If the applicant is a corporation, a corporate resolution is attached granting me the authority to sign the application on behalf of the corporation.

Name of signing official:

Anne M. Gaffney

Print Name

TITLE: Vice President - Technology Development Center

4/18/08  
DATE

Anne M. Gaffney  
SIGNATURE

\*APPLICATION MUST BE SIGNED BY ONE OF THE FOLLOWING:

- a. Principal Officer of Corporation
- b. President or Owner of Company
- c. General Partner if a Partnership
- d. Plant Manager or Authorized Representative

**TABLE 1 EPA PRIORITY POLLUTANTS****CHECK APPROPRIATE BOX**

NAME	A	B	C	D		A	B	C	D
Acenaphthene			X		2,4 dimethylphenol			X	
acrolein			X		2,4 dinitrotoluene			X	
acrylonitrile			X		2,6 dinitrotoluene			X	
benzene				X	1,2 diphenylhydrazine			X	
benzidine			X		ethylbenzene				X
carbon tetrachloride (tetrachloromethane)			X		fluoranthene			X	
chlorobenzene			X		4-chlorophenyl phenyl ether			X	
1,2,4-trichlorobenzene				X	4-bromophenyl phenyl ether			X	
hexachlorobenzene			X		bis(2-chloroisopropyl) ether			X	
1,2 dichloroethane			X		bis(2-chloroethoxy) methane			X	
1,1,1 trichloroethane			X		methylene chloride(dichloromethane)				X
hexachloroethane			X		methyl chloride (chloromethane)			X	
1,1,dichloroethane			X		methyl bromide (bromomethane)			X	
1,1,2 trichloroethane			X		bromoform(tribromomethane)			X	
1,1,2,2 tetrachloroethane			X		dichlorobromomethane			X	
chloroethane			X		trichlorofluoromethane			X	
bis(chloromethyl) ether			X		dichlorodifluoromethane			X	
Bis(2 chloroethyl) ether			X		chlorodibromomethane			X	
2-chloroethyl vinyl ether mixed			X		hexachlorobutadiene			X	
2-chloronaphthalene			X		hexachlorocyclopentadiene			X	
2,4,6, trichlorophenol			X		isophorone			X	
parachlorometa cresol			X		naphthalene				X
Chloroform (trichloromethane)				X	nitrobenzene			X	
2 chlorophenol			X		2-nitrophenol			X	
1,2, dichlorobenzene			X		4-nitrophenol			X	
1,3, dichlorobenzene			X		2,4-dinitrophenol			X	
1,4, dichlorobenzene			X		4,6 dinitro-o cresol			X	
3,3, dichlorobenzidine			X		N-nitrosodimethylamine			X	
1,1,dichloroethylene			X		N-nitrosodiphenylamine			X	
1,2 trans-dichloroethylene			X		N-nitrosodi-n-propylamine			X	
2,4,dichlorophenol			X		pentachlorophenol			X	
1,2, dichloropropane				X	phenol			X	
1,3, dichloropropylene			X						
(1,3 dichlor propene)			X						

- A. KNOWN TO BE PRESENT**  
**B. SUSPECTED TO BE PRESENT**  
**C. KNOWN TO BE ABSENT**  
**D. SUSPECT TO BE ABSENT**

**TABLE 1 EPA PRIORITY POLLUTANTS (continued)****CHECK APPROPRIATE BOX**

NAME	A	B	C	D		A	B	C	D
bis(2-ethylhexyl) phthalate			X		endrin			X	
butylbenzylphthalate			X		endrin aldehyde			X	
di-n-butylphthalate			X		heptachlor			X	
di-n-octylphthalate			X		heptachlor (epoxide)			X	
diethylphthalate			X		BHC Alpha			X	
dimethylphthalate			X		BHC Beta			X	
benzo(a)anthracene			X		BHC Gamma			X	
benzo(a)pyrene			X		BHC Delta			X	
3,4 benzofluoranthene			X		PCB1242			X	
benzo(k) fluoranthene			X		PCB1254			X	
chrysene				X	PCB1221			X	
acenaphthylene			X		PCB1232			X	
anthracene				X	PCB1248			X	
benzo(ghi)perylene			X		PCB1260			X	
fluorene			X		PCB1016			X	
phenanthrene				X	toxaphene			X	
dibenzo (a,h) anthracene			X		antimony(total)			X	
indeno (1,2,3-c,d) pyrene			X		arsenic (total)				X
pyrene				X	asbestos (fibrous)			X	
tetrachloroethylene				X	beryllium (total)			X	
toluene				X	cadmium (total)	X			
trichloroethylene			X		chromium (total)	X			
vinyl chloride			X		copper (total)	X			
aldrin			X		cyanide (total)				X
dieldrin			X		lead (total)	X			
chlordan			X		mercury (total)	X			
4,4 DDT			X		nickel (total)	X			
4,4, DDE			X		selenium (total)				X
4,4, DDD			X		silver (total)				X
endosulfan I			X		thallium (total)				X
endosulfan II			X		zinc (total)	X			
endosulfan sulfate			X		2,3,7,8, tetrachlorodibenzo			X	
					p-dioxin			X	

- A. KNOWN TO BE PRESENT  
 B. SUSPECTED TO BE PRESENT  
 C. KNOWN TO BE ABSENT  
 D. SUSPECT TO BE ABSENT

**TABLE 2 NJDEP EXPANDED PRIORITY POLLUTANTS****CHECK APPROPRIATE BOX**

NAME	A	B	C	D		A	B	C	D
acrylamide			X		n,n-dimethyl aniline			X	
amitrole			X		3,3-dimethyl benzidine			X	
amyl alcohols			X		1,1-dimethylhydrazine			X	
aniline hydrochloride			X		dioxane				X
anisole			X		diphenylamine			X	
auramine			X		ethylenimine			X	
benzotrichloride			X		hydrazine			X	
benzylamine			X		4,4-methylene bis			X	
					(2-chloraniline)			X	
o-chloroaniline			X		4,4-methylenedianiline			X	
m-chloroaniline			X		methyl isobutyl ketone			X	
p-chloroaniline			X		alpha-naphthylamine			X	
1-chloro-2-nitrobenzene			X		beta-naphthylamine			X	
1-chloro-4-nitrobenzene			X		n-methylaniline			X	
chloroprene			X		1,2- phenylenediamine			X	
chrysoidine			X		1,3- phenylenediamine			X	
cumene				X	1,4-phenylenediamine			X	
2,3-dichloroaniline			X		sudan 1 (solvent yellow 14)			X	
2,4-dichloroaniline			X		thiourea				X
2,5-dichloroaniline			X		toluene sulfonic acids			X	
3,4-dichloroaniline			X		toluidines			X	
3,5-dichloroaniline			X		xylydines			X	
1,3-dichloropropene			X						
1,3-dimethoxybenzidine			X						

- A. KNOWN TO BE PRESENT**  
**B. SUSPECTED TO BE PRESENT**  
**C. KNOWN TO BE ABSENT**  
**D. SUSPECT TO BE ABSENT**

**TABLE 3 EPA HAZARDOUS SUBSTANCES****CHECK APPROPRIATE BOX**

NAME	A	B	C	D		A	B	C	D
acetaldehyde				X	isopropanolamine			X	
allyl alcohol			X		kelthane			X	
allyl chloride			X		kepone			X	
amyl acetate				X	malathion			X	
aniline				X	mercaptodimethur			X	
benzonitrile				X	methoxychlor			X	
benzyl chloride			X		methyl mercaptan			X	
butyl acetate			X		methyl methacrylate			X	
butylamine				X	methly parathion			X	
captan			X		mevinphos			X	
carbaryl			X		mexacarbate			X	
carbofuran			X		monoethylamine			X	
carbon disulfide				X	monomethylamine			X	
chlorpyrifos			X		naled			X	
coumaphos			X		napthenic acid			X	
cresol			X		nitrotoluene			X	
crotonaldehyde			X		parathion			X	
cyclohexane			X	X	phenolsulfanate			X	
2,4-D (2,4-dichlorophenoxy acetic acid)			X		phosgene			X	
diazinon			X		propagrite			X	
dicamba			X		propylene oxide			X	
dichlobenil			X		pyrethrins			X	
dichlone			X		quinoline				X
2,2-dichloropropionic acid			X		resorcinol			X	
dichlorvos			X		strontium			X	
diethylamine			X		strychnine			X	
dimethylamine			X		stryrene				X
					2,4,5-T (2,4,5-trichloro- phenoxy acetic acid)			X	
dinitrobenzene			X		TDE (tetrachloro- diphenylethane)			X	
diquat			X		2,4,5-TP 2(2,4,5- trichlorophenoxy			X	
disulfoton			X		trichlorofon			X	
diuron			X		triethylamine			X	
epichlorohydrin			X		trimethylamine			X	
					propanoic acid			X	

- A. KNOWN TO BE PRESENT  
 B. SUSPECTED TO BE PRESENT  
 C. KNOWN TO BE ABSENT  
 D. SUSPECT TO BE ABSENT

**TABLE 3 EPA HAZARDOUS SUBSTANCES (continued)****CHECK APPROPRIATE BOX**

<u>NAME</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>		<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>
ethanolamine				X	uranium			X	
ethion			X		vanadium				X
ethylene diamine				X	vinyl acetate			X	
ethylene dibromide			X		xylene				X
formaldehyde			X		xlenol			X	
furfural			X		zirconium				X
guthion			X						
isoprene				X					

- A. KNOWN TO BE PRESENT**  
**B. SUSPECTED TO BE PRESENT**  
**C. KNOWN TO BE ABSENT**  
**D. SUSPECT TO BE ABSENT**

## SUPPLEMENTAL SEWER USE APPLICATION QUESTIONNAIRE

The following questionnaire must be completed and submitted by all industrial and tax-exempt users making application for a SEWER USE PERMIT. The purpose of this questionnaire is to identify the correct name and address of the applicant and all individuals and entities owning 10% or more of the applicant. This will assist the PVSC by providing necessary information for service of notices, bills and other documents upon the applicant, for service of process as well as the individual to be contacted in the event of an emergency.

BY SIGNING THIS APPLICATION THE APPLICANT IS ACKNOWLEDGING ITS CONTINUING OBLIGATION TO UPDATE THE INFORMATION CONTAINED IN THIS QUESTIONNAIRE. SPECIFICALLY THE APPLICANT UNDERSTANDS THAT IT SHALL NOTIFY THE PVSC WITHIN THIRTY (30) DAYS OF ITS ENTERING INTO A CONTRACT OR AGREEMENT TO TRANSFER ITS CAPITAL STOCK AND/OR 50% OR MORE OF ITS ASSETS. THE APPLICANT SHALL LIKEWISE INFORM THE PVSC, ON A CONTINUING BASIS, OF ALL INDIVIDUALS OR ENTITIES OWNING 10% OR MORE OF THE CAPITAL STOCK OR ASSETS OF THE CORPORATION AND ANY INDIVIDUAL OR ENTITY ENTITLED TO RECEIVE MORE THAN 10% OF THE NET PROFITS OF THE APPLICANT.

FAILURE TO NOTIFY THE PVSC OF ANY CHANGES IN THE CORPORATE STRUCTURE, OWNERSHIP OR PLANNED TRANSFER OF OWNERSHIP WITHIN 15 DAYS OF ITS OCCURRENCE SHALL BE DEEMED A VIOLATION OF THE SEWER USE PERMIT, THE RULES AND REGULATIONS OF THE PVSC AND N.J.S.A. 58:14-1 et. seq.

### SECTION ONE

(To be completed by all applicants)

**NAME OF APPLICANT:** State the complete name of the organization applying for a SEWER USE PERMIT ("Permit"), as it appears on the certificate of incorporation, charter, by-laws, partnership agreement, trust or other official document which establishes the name of the applicant (if no such document exists, state the name the business uses):

Lummus Technology Inc.

Name of Applicant

**TRADE NAME:** Identify all trade names, names under which the applicant will be doing or soliciting business and/or fictitious names that the organization will utilize at the location(s) for which this Permit application is made.

Lummus Technology or Lummus or Lummus Technology Division or  
Technology Development Center

Trade Name/Fictitious Name

**BUSINESS ORGANIZATION:** Please check the appropriate box:

- |   |  |
|---|--|
| <input type="checkbox"/> Sole Proprietorship    | <input type="checkbox"/> Trust                     |
| <input type="checkbox"/> Partnership            | <input type="checkbox"/> Joint Venture             |
| <input type="checkbox"/> Limited Partnership    | <input type="checkbox"/> Non-Profit Corporation    |
| <input checked="" type="checkbox"/> Corporation | <input type="checkbox"/> Limited Liability Company |
| <input type="checkbox"/> Other (describe)       |  |

**EMERGENCY CONTACT PERSON:** In the event of an emergency, provide the name, address and telephone number of the person(s) the PVSC can contact:

Name: Marshall Margolis

Street Address: 1515 Broad Street

City, State & Zip Code: Bloomfield, NJ 07003

Business Telephone: 973-893-2779      Emergency Telephone: 732-577-0417 (Home)  
973-519-4795 (Cell)

**PAST NAMES OF APPLICANT.** List **all** names under which the applicant has done business or held itself out to the public as doing business in the past. Include names of division, and "trading as," "doing business as," fictitious, or informal name.

<u>Name</u>	<u>From (Year)</u>	<u>To (Year)</u>
<u>ABB Lummus Global Inc.</u>	<u>1995</u>	<u>2007</u>
<u>ABB Lummus Crest Inc.</u>	<u>1990</u>	<u>1995</u>
<u>Lummus Crest Inc.</u>	<u>1983</u>	<u>1990</u>
<u>The Lummus Company</u>	<u>1930</u>	<u>1983</u>

**APPLICANT'S FORMER FACILITIES IN NEW JERSEY.** List all locations, including office, in the State of New Jersey at which the applicant formerly operated any aspect of its business, and any location at which such a business was owned or operated by any predecessor of the applicant, or by any owner, partner, director, officer, key employee or stockholder holding 10% or more of the applicant's equity.

<u>Address</u>	<u>Type of Facility</u>	<u>From To (years)</u>	<u>NJDEP regis. No. and or USEPA I.D.</u>
<u>755 Jersey Avenue</u>	<u>R&amp;D Center</u>	<u>1976-1984</u>	<u>NJD078257060</u>
<u>New Brunswick, NJ</u>			
<u>146 Haynes Avenue</u>	<u>Offices &amp;</u>	<u>1959-1967</u>	
<u>Newark, NJ</u>	<u>R&amp;D Center</u>		



**APPLICANT'S FACILITIES IN OTHER JURISDICTIONS.** List all locations in any state, including offices, districts or territory of the United States other than New Jersey, or in any foreign country, at which the applicant is currently operating any aspect of its business.

<u>Address</u>	<u>Telephone</u>	<u>Type of facility</u>	<u>USEPA I.D. and/or any permits (nos. and name of issuing agency)</u>
3010 Briar Park	713-821-5000	Office	N/A
Houston, TX 77042			

## SECTION TWO

(To be completed only by Corporations and Limited Liability Companies)

**REGISTERED AGENT:** Identify the name and address of the Corporation's Registered Agent:

Name:

Company Name: The Corporation Trust

Street Address: 1209 Orange Street

City, State & Zip Code: Wilmington, DE 19801

Telephone: 302-658-7581  
(Area Code)

**DATE AND PLACE OF INCORPORATION/FORMATION:** Identify the state where the corporation/LLC was organized and the date on which the Certificate of Incorporation/Formation was filed:

State/Country: Delaware, USA

Date: December 19, 1930

Certificate of Incorporation No.: 0292822

Copy of certificate of incorporation attached? ☒ Yes ☐ No

**DATE AUTHORIZED IN NEW JERSEY:** If other than a New Jersey corporation/LLC, state the date on which the corporation/LLC received a Certificate of Authority to Transact Business in New Jersey (and attach copy).

Date: July 29, 1931

**OFFICERS.** List the following information as to each Officer of the corporation. Use additional copies of this section as necessary.

Name: Daniel M. McCarthy Telephone: 973-893-1515

Business address: 1515 Broad Street, Bloomfield, NJ 07003

Office held	Date took office	Date of birth
President & CEO	11/16/07	

Name: David A. Delman Telephone: 832-513-1000  
(area code)

Business address: 2103 Research Forest Drive  
The Woodlands, TX 77380

Office held	Date took office	Date of birth
Sr. Vice President	11/16/07	

General Counsel & Secretary

**DIRECTORS.** List the following information as to each Director of the corporation. Use additional copies of this section as necessary.

Name: Ronald A. Ballschmiede Telephone: 832-513-1000  
(area code)

Business address: 2103 Research Forest Drive  
The Woodlands, TX 77380

Office held	Date took office	Date of birth
Director	11/16/07	

this section as necessary.

Name: John Albanese

Telephone: 973-893-1515

Business address: 1515 Broad Street, Bloomfield, NJ 07003

<u>Office held</u>	<u>Date took office</u>	<u>Date of birth</u>
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Sr. Vice President	11/16/07	
--------------------	----------	--

Chief Financial Officer and Treasurer

Name: David A. Bordages

Telephone: 832-513-1233  
(area code)

Business address: 2103 Research Forest Drive  
The Woodlands, TX 77380

<u>Office held</u>	<u>Date took office</u>	<u>Date of birth</u>
--------------------	-------------------------	----------------------

Sr. Vice President	11/16/07	
--------------------	----------	--

Human Resources

**DIRECTORS.** List the following information as to each Director of the corporation. Use additional copies of this section as necessary.

Name: Ronald E. Blum

Telephone: 832-513-1885  
(area code)

Business address: 2103 Research Forest Drive  
The Woodlands, TX 77380

<u>Office held</u>	<u>Date took office</u>	<u>Date of birth</u>
--------------------	-------------------------	----------------------

Director	11/16/07	
----------	----------	--

**OFFICERS.** List the following information as to each Officer of the corporation. Use additional copies of this section as necessary.

**Name:** Michael Blaney **Telephone:** 973-893-1515

**Business address:** 1515 Broad Street, Bloomfield, NJ 07003

<u>Office held</u>	<u>Date took office</u>	<u>Date of birth</u>
Vice President and Assistant Secretary	11/16/07	

**Name:** Curtis Culver **Telephone:** 832-513-1000  
(area code)

**Business address:** 2103 Research Forest Drive  
The Woodlands, TX 77380

<u>Office held</u>	<u>Date took office</u>	<u>Date of birth</u>
Assistant Secretary	11/16/07	

**DIRECTORS.** List the following information as to each Director of the corporation. Use additional copies of this section as necessary.

**Name:** David A. Delman **Telephone:** 832-513-1000  
(area code)

**Business address:** 2103 Research Forest Drive  
The Woodlands, TX 77380

<u>Office held</u>	<u>Date took office</u>	<u>Date of birth</u>
Director	11/16/07	

**FORMER OFFICERS AND DIRECTORS:** List the following information as to each person who was an Officer or Director of the corporation at any time during the last 10 years and is not listed in the responses above. Use additional copies of this section, as necessary.

Name and last known address: Martin W. Gross  
Cityport Building, Affolternstrasse 44;  
Zurich, Switzerland

Position held	From	To (month/year)	Date of birth
President & CEO	10/05	11/07	1960

See attached List of Former Officers and Directors

### SECTION THREE

(To be completed only by Corporations and Limited Liability Companies)

List all persons and/or entities holding a 10% or greater ownership, equity, beneficial or other interest in the Applicant along with the addresses and telephone #. Use additional copies of this section as necessary.

Name: Chicago Bridge & Iron Company

Street Address: One CB&I Plaza  
2103 Research Forest Drive

City, State & Zip Code: The Woodlands, TX 77380-2624 Bus.Phone 832-513-1000

Name:

Street Address:

City, State & Zip Code:

Bus.Phone

If any of the persons and/or entities listed above is a corporation or Limited Liability Corporation, for each such corporation provide all information requested in Section Two of this Questionnaire.

### SECTION FOUR

(To be completed only by Partnerships or Joint Ventures)

Provide a copy of the partnership or joint venture agreement of applicant.

Copy attached? ☐ Yes ☐ No

**TYPE OF ASSOCIATION:**

Check One

☐ General Partnership      ☐ Limited Partnership      ☐ Joint Venture

**GENERAL PARTNERS OR JOINT VENTURERS.** List the following information as to each partner or joint venturer. Use additional copies of this section, as necessary. If a limited partnership, list limited partners separately under the heading "limited partners."

Name:

Street Address:

City, State &amp; Zip Code:

Telephone: \_\_\_\_\_

Name:

Street Address:

City, State &amp; Zip Code:

Telephone: \_\_\_\_\_

**LIMITED PARTNERS.** List the following information as to each limited. Use additional copies of this section as necessary.

Name:

Street Address:

City, State &amp; Zip Code:

Telephone: \_\_\_\_\_

Name:

Street Address:

City, State &amp; Zip Code:

Telephone: \_\_\_\_\_

**LUMMUS TECHNOLOGY INC.  
FORMER OFFICERS AND DIRECTORS**

<b>OFFICER</b>		<b>Positions Held</b>	<b>FROM</b>	<b>TO</b>
Donald P.	Aiken	Director		
K. E.	Almskog	Chairman	05-02-1995	12-04-1998
Chris J.	Braithwaite	Senior Vice President		3/31/2004
Samir	Brikho	Director, President, CEO	8/2003	10/2005
Ronald	Dawson	Senior Vice President; Human Resources	9/1989	11/2007
Margaret	Duplantier	Director Senior Vice President; General Counsel & Secretary	9/1996	11/2007
Khalid	Farid	Executive Vice President		11/2007
Michael J.	Ford	Vice President; Controller & Assistant Secretary	3/1991	11/2007
Erik	Fougner	Chairman Director		
D. K.	Grierson	Director		3-14-2001
G.	Gundersen	Vice Chairman	05-02-1995	
J. W.	Holmes	Senior Vice President		
P.	Janson	Director	05-02-1995	
H.	Kasi	Director		
G. B. J.	Koeleman	Vice President, Treasurer & CFO		7/31/2004
G. Foelke	Kolff	Senior Vice President		
S. A.	Kreipke	President, Director	06-18-1980 01-1986	12-10-2002
Debra	Leary	Assistant Treasurer		11/2007
R. P.	LeBright	Senior Vice President		12/31/2003
C. J.	McGregor	Assistant Treasurer	05-15-1996	01-30-1998
John C.	O'Connor	Assistant Secretary		01-29-1999
H.	Pierce	Director		
Pleun E.	Schudderbeurs	Senior Vice President		
John	Scriven	Director		
Juerg	Seiler	Senior Vice President, Treasurer & CFO		12/31/2005
S. M.	Solomon	Director, President & CEO, Vice President	04-01-1980	08-01-2003
Gary	Steel	Chairman Director		
A	Storck	Director		
S.	Tan	Assistant Treasurer	3-06-2002	
M. T.	Thatcher	Director		09-24-2002
F.	van den Broeke	Senior Vice President		
Peter	Voser	Chairman		
Raphael	Widmer	Senior Vice President, Treasurer & CFO Director	1/2006	11/2007
George J.	Wright	Vice President, General Counsel & Secretary	01-01-1991	08-01-1999

**FORMER PARTNERS/JOINT VENTURERS.** List the following information as to all prior partners (general and limited) and joint venturers of the applicant during the past 10 years that are not listed above. Use additional copies of this section as necessary.

Name:

Street Address:

City, State & Zip Code:

Telephone:

Dates during which individual was a partner: \_\_\_\_\_

Name:

Street Address:

City, State & Zip Code:

Telephone: \_\_\_\_\_ Telephone: \_\_\_\_\_

Dates during which individual was a partner: \_\_\_\_\_

If any of the persons and/or entities listed above is a corporation or Limited Liability Corporation, for each such corporation provide all information requested in Section Two of this Questionnaire.

## SECTION FIVE

(This section to be completed only if the business concern is organized in a form other than a sole proprietorship, corporation, partnership or joint venture—such as a trust or association)

**FORM OF BUSINESS ORGANIZATION:** Describe how the business entity is organized and under what legal authority it was established.

Type (trust, trade association; estate; etc.)

Copy attached?      ☐ Yes      ☐ No



**OWNERS, OFFICERS, TRUSTEES, CONTROLLING PARTIES, ETC.** List the following information as to each person who owns, controls or is an officer or trustee of the Applicant. If any owner, officer, trustee, or controlling party listed below shall be a corporation, limited liability corporation, or partnership (general or limited liability), the Applicant shall supply the information requested in Sections Two, Three and Four as applicable. Use additional copies of this section as necessary.

Name:

Street Address:

City, State & Zip Code:

Telephone:

Name:

Street Address:

City, State & Zip Code:

Telephone:

## SECTION SIX

### CIVIL VIOLATIONS HISTORY

(To be completed by all applicants)

The following questions concern civil violations of environmental protection laws and regulations. In this section, the term "you" refers to the applicant identified in SECTION I, and to any of the following:

- a. Any predecessor firm, or any previous name under which the applicant operated.
- b. Subsidiaries: Any business in which the applicant holds 25% of equity or debt liability.
- c. Sister companies: Any business in which the applicant's parent company holds more than 10% of the equity or debt liability.
- d. Any corporation of which the Applicant is a subsidiary.
- e. Any Officer, Director, Partner, or Joint Venturer of the applicant, and any business concern owned or controlled by any such individual.

Provide a response in each section. Each item pertains to all of the entities and individuals listed above. If an answer is None or the item is not applicable, write "None" or "N/A". A question left unanswered will not be presumed "Not applicable" or "None" - THE FORM WILL BE DEEMED INCOMPLETE.

As used below, the term "law or regulation pertaining to protection of the environment" includes laws and regulations relating to the discharge, treatment, storage, processing, recycling or disposal of industrial waste or hazardous waste and any others relating to water and air pollution, discharge of hazardous substances and treatment of hazardous materials. It includes regulations of the Passaic Valley Sewerage Commissioners ("PVSC"), N.J. DEP, the U.S. EPA, the N.J. DOT, and the U.S. Department of Transportation.

**A. NEW JERSEY VIOLATIONS NOTICES.** List and explain all Summonses, Notices of Violation, Notices of Prosecution, Administrative Orders and Actions, civil complaints, settlements, Judicial or Administrative Consent Orders, or Notices of Intent to Deny or Revoke any license or permit, or similar notices, issued to you within the past 10 years by the PVSC, New Jersey Department of Environmental Protection (DEP) or United States Environmental Protection Agency. **Attach additional sheets if necessary.**

Name of  
entity cited: Lummus Technology

Date  
Issued: March 12, 2008

Address of  
alleged violation: 1515 Broad Street, Bloomfield, NJ 07003

Alleged violation: Failure to maintain adequate aisle Type of  
notice: NOV

Disposition & explanation: Violation corrected at time of inspection. No further action required.

Name of issuing agency: NJDEP

Docket No.: No available

Bureau of Hazardous Waste Compliance and Enforcement

**B. FEDERAL VIOLATION NOTICES.** List and explain all Notices of Violation, Notices of Prosecution, Administrative Orders and Actions, civil complaints, or similar notices issued to you within the past 10 years by the U.S. Environmental Protection Agency or U.S. Department of Transportation for any alleged violation of any federal law or regulation pertaining to protection of the environment. **Use additional copies of this section as necessary.**

Name of  
entity cited: \_\_\_\_\_

Date  
Issued: \_\_\_\_\_

Address of  
alleged violation: \_\_\_\_\_

Alleged violation: \_\_\_\_\_ Type of  
notice: \_\_\_\_\_

Disposition &  
explanation: \_\_\_\_\_

Name of issuing agency: \_\_\_\_\_

Docket no.: \_\_\_\_\_

**C. NEW JERSEY MUNICIPALITIES AND COUNTIES.** List and explain all Notices of Violation, Notices of Prosecution, Administrative Orders and Actions, Summonses, civil Complaints, Citations of any kind, and Notices of intent to Deny or Revoke a license or permit, or any similar notices issued to you within the past 10 years by any municipality or county in the State of New Jersey, for any alleged violation of any law or regulation pertaining to the protection of the environment, other than a motor vehicle or littering offense. Use additional copies of this section as necessary.

Name of  
entity cited: NONE

Date  
Issued: \_\_\_\_\_

Address of  
alleged violation: \_\_\_\_\_

Alleged violation: NONE

Type of  
notice: \_\_\_\_\_

Disposition &  
explanation: \_\_\_\_\_  
\_\_\_\_\_

Name of issuing agency: \_\_\_\_\_ Docket no.: \_\_\_\_\_

**D. OTHER STATES AND FOREIGN COUNTRIES.** List and explain all Notices of Violation, Notices of Prosecution, Administrative Orders and Actions, Summons, Civil Complaints, Citations of any kind, and Notices of Intent to Deny or Revoke a license or permit, or any similar notices issued to you within the past 10 years by any state other than the State of New Jersey or by any foreign country, for any alleged violation of any law or regulation pertaining to the protection of the environment, other than a motor vehicle or littering offense. Use additional copies of this section as necessary.

Name of  
entity cited: NONE

Date  
Issued: \_\_\_\_\_

Address of  
alleged violation: \_\_\_\_\_

Alleged violation: NONE

Type of  
notice: \_\_\_\_\_

Disposition &  
explanation: \_\_\_\_\_  
\_\_\_\_\_

Name of issuing agency: \_\_\_\_\_ Docket no.: \_\_\_\_\_

**A. NEW JERSEY VIOLATIONS NOTICES.** List and explain all Summonses, Notices of Violation, Notices of Prosecution, Administrative Orders and Actions, civil complaints, settlements, Judicial or Administrative Consent Orders, or Notices of Intent to Deny or Revoke any license or permit, or similar notices, issued to you within the past 10 years by the PVSC, New Jersey Department of Environmental Protection (DEP) or United States Environmental Protection Agency. Attach additional sheets if necessary.

Name of  
entity cited: ABB Lummus Global Inc.

Date  
Issued: November 22, 2005

Address of  
alleged violation: 1515 Broad St., Bloomfield, NJ 07003

Alleged violation: Missing safety device test records Type of  
notice: NOV

Disposition & explanation: Inspections performed, documented and submitted to Agency.

Name of issuing agency: NJDEP  
Bureau of Radiological Health

Docket No.: 104389

**B. FEDERAL VIOLATION NOTICES.** List and explain all Notices of Violation, Notices of Prosecution, Administrative Orders and Actions, civil complaints, or similar notices issued to you within the past 10 years by the U.S. Environmental Protection Agency or U.S. Department of Transportation for any alleged violation of any federal law or regulation pertaining to protection of the environment. Use additional copies of this section as necessary.

Name of  
entity cited: NONE

Date  
Issued: \_\_\_\_\_

Address of  
alleged violation: \_\_\_\_\_

Alleged violation: \_\_\_\_\_ Type of  
notice: \_\_\_\_\_

Disposition &  
explanation: \_\_\_\_\_

Name of issuing agency: \_\_\_\_\_ Docket no.: \_\_\_\_\_

**A. NEW JERSEY VIOLATIONS NOTICES.** List and explain all Summonses, Notices of Violation, Notices of Prosecution, Administrative Orders and Actions, civil complaints, settlements, Judicial or Administrative Consent Orders, or Notices of Intent to Deny or Revoke any license or permit, or similar notices, issued to you within the past 10 years by the PVSC, New Jersey Department of Environmental Protection (DEP) or United States Environmental Protection Agency. Attach additional sheets if necessary.

Name of  
entity cited: ABB Lummus Global Inc.

Date  
Issued: November 29, 2004

Address of  
alleged violation: 1515 Broad St., Bloomfield, NJ 07003

Alleged violation: Hazardous waste container makring

Type of  
notice: Civil Administrative  
Penalty Assessment

Disposition & explanation: Corrected at time of inspection, added words "Hazardous Waste"  
and date to two containers; \$1000.00 penalty.

Name of issuing agency: NJDEP  
Bureau of Hazardous Waste Compliance & Enforcement

Docket No.: PEA040002-NJD006987028

**B. FEDERAL VIOLATION NOTICES.** List and explain all Notices of Violation, Notices of Prosecution, Administrative Orders and Actions, civil complaints, or similar notices issued to you within the past 10 years by the U.S. Environmental Protection Agency or U.S. Department of Transportation for any alleged violation of any federal law or regulation pertaining to protection of the environment. Use additional copies of this section as necessary.

Name of  
entity cited: NONE

Date  
Issued: \_\_\_\_\_

Address of  
alleged violation: \_\_\_\_\_

Alleged violation: \_\_\_\_\_

Type of  
notice: \_\_\_\_\_

Disposition &  
explanation: \_\_\_\_\_

Name of issuing agency: \_\_\_\_\_

Docket no.: \_\_\_\_\_

**A. NEW JERSEY VIOLATIONS NOTICES.** List and explain all Summonses, Notices of Violation, Notices of Prosecution, Administrative Orders and Actions, civil complaints, settlements, Judicial or Administrative Consent Orders, or Notices of Intent to Deny or Revoke any license or permit, or similar notices, issued to you within the past 10 years by the PVSC, New Jersey Department of Environmental Protection (DEP) or United States Environmental Protection Agency. Attach additional sheets if necessary.

Name of

entity cited: ABB Lummus Global Inc.

Date

Issued: August 30, 1999

Address of

alleged violation: 1515 Broad St., Bloomfield, NJ 07003

Type of

Alleged violation: Administrative & procedural deficiencies notice: NOVDisposition & explanation: Remedial actions taken with specified time limits; in compliance, no further action.Name of issuing agency: NJDEPDocket No.: NJD006987028

Bureau of Hazardous Waste Compliance &amp; Enforcement

**B. FEDERAL VIOLATION NOTICES.** List and explain all Notices of Violation, Notices of Prosecution, Administrative Orders and Actions, civil complaints, or similar notices issued to you within the past 10 years by the U.S. Environmental Protection Agency or U.S. Department of Transportation for any alleged violation of any federal law or regulation pertaining to protection of the environment. Use additional copies of this section as necessary.

Name of

entity cited: NONE

Date

Issued: \_\_\_\_\_

Address of

alleged violation: \_\_\_\_\_

Alleged violation: \_\_\_\_\_

Type of  
notice: \_\_\_\_\_Disposition &  
explanation: \_\_\_\_\_

Name of issuing agency: \_\_\_\_\_

Docket no.: \_\_\_\_\_

**SECTION SEVEN****OTHER CIVIL COURT JUDGMENTS AND PENDING LITIGATION**

(To be completed by all applicants)

**A. OTHER JUDGMENTS.** List and explain all judgments of liability in excess of \$25,000 rendered against the applicant in the past 10 years, starting with the most recent. Use additional copies of this section as necessary.

<b>Title of case:</b> NONE pertaining to the protection of the environment with respect to the Technology Development Center located in Bloomfield, New Jersey	<b>Docket No.:</b> _____
<b>Name &amp; location of court:</b> _____	<b>Date judgment entered:</b> _____
<b>Nature of suit:</b> _____	<b>Amt./terms of judgment:</b> _____

**B. PENDING SUITS.** List and explain all civil suits in which the applicant is presently involved as a party plaintiff or defendant. Include matters involving resolution before arbitration boards. Use additional copies of this section as necessary.

<b>Title of case:</b> NONE pertaining to te protection of the environment with respect to the Technology Development Center located in Bloomfield, New Jersey	<b>Docket No.:</b> _____
<b>Name &amp; location of court:</b> _____	<b>Date Filed:</b> _____
<b>Nature of suit:</b> _____	<b>Status:</b> _____

**SECTION EIGHT****CRIMINAL CHARGES AND CONVICTIONS**

(To be completed by all applicants)

List all indictments, accusations, summonses, complaints, and information against the applicant for any crime, felony, misdemeanor, disorderly persons offense, petty disorderly persons offense or criminal violation.

**NOTE:** You need not list convictions for any violation of Title 39 of the Revised Statutes (N.J.S.A.) or comparable motor vehicle offenses in jurisdictions other than New Jersey. Death by Auto or Vehicular Homicide is considered a criminal offense and must be listed under this item.

List convictions first. Use additional copies of this page as necessary.

Name of entity  
charged/convicted: NONE

Description of  
crime/offense charged: NONE

Date  
Charged: \_\_\_\_\_

Jurisdiction  
Where Charged: \_\_\_\_\_

Indictment information,  
Complaint No., indictment No. etc., \_\_\_\_\_

Disposition (if applicable,  
sentence imposed): \_\_\_\_\_



**CERTIFICATION**

(All applicants must sign and date the following certification)

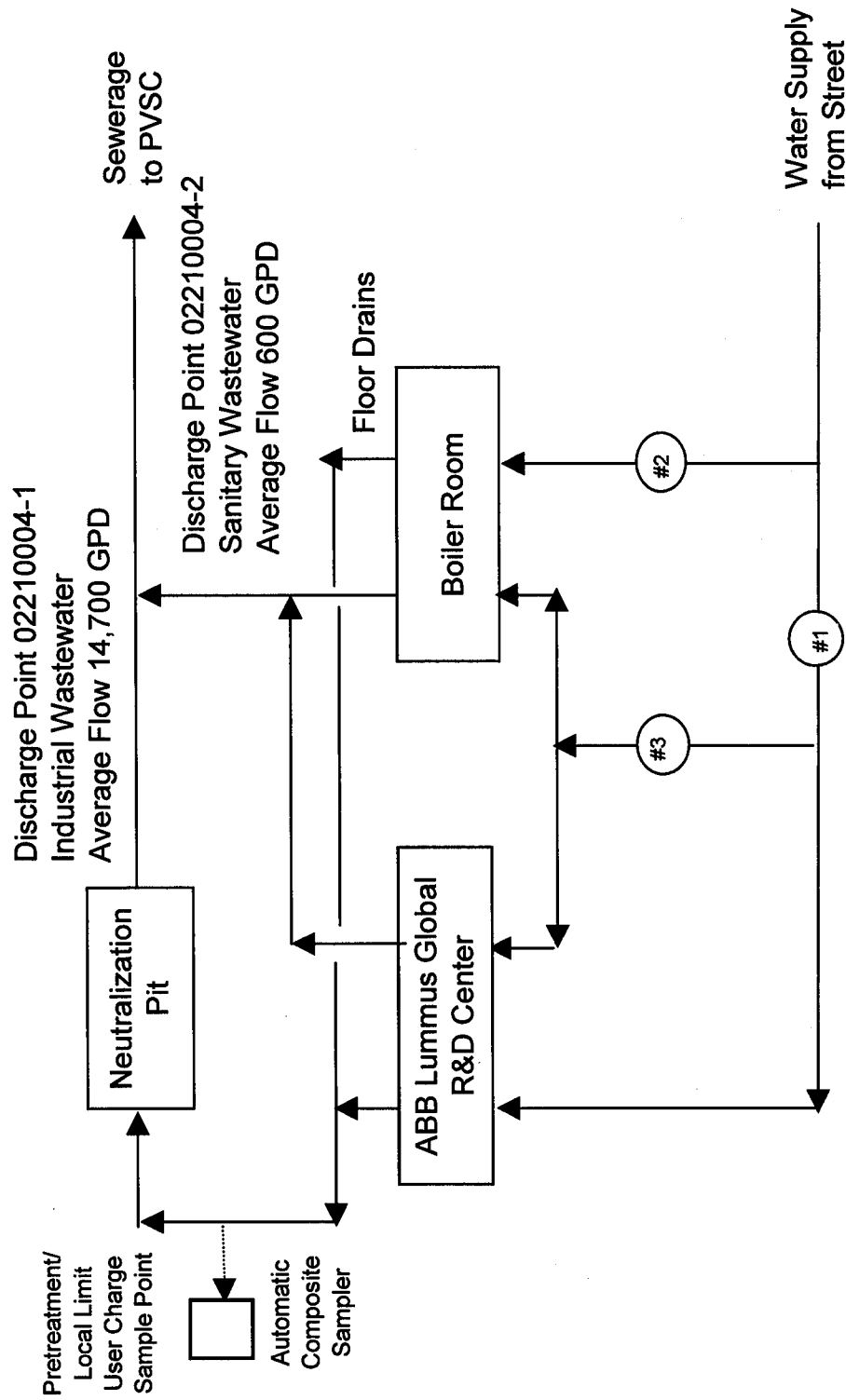
I hereby certify the answers supplied in the foregoing SUPPLEMENTAL SEWER USE PERMIT APPLICATION QUESTIONNAIRE are true. I am aware that if any of the foregoing responses are willfully false, I am subject to punishment.

Dated: 4/18/08

Anne M. Hoffmey  
Signature

Vice President of the Technology Development  
Print Title & Position Center

**Figure 1**  
**Water and Sewer Schematic**  
 ABB Lummus Global, Inc.; Technology Development Center  
 1515 Broad Street; Bloomfield, NJ 07003



Approved by: *Manjiv Singh*  
 Date: 10 April 2008

**APL**

AQUA PRO-TECH LABORATORIES

## CERTIFICATIONS

NJ DEP 07010 / NY DOH 11634 / CT PH-0233

US ARMY CORPS (USACE)

**ANALYTICAL RESULTS SUMMARY**

**Client** Lummus Technology Inc-PVSC  
1515 Broad Street

**APL Order ID Number** 28030287

**Contact** Bloomfield, NJ 07003-3096  
M. Link

**Date Sampled** 03/06/2008 8:30  
**Date Received** 03/07/2008 16:17  
**Matrix** Wastewater

**Project**

**Site** PV Disch.

**Report Date** 03/25/2008 9:21

**Customer Service Rep.**

Sample Number/ Parameter	Method	Analysis Time	Analyst	Result	Units	MDL
<b>28030287-001</b> PVSC Disch Grab						
Total Petroleum Hydrocarbon	EPA 1664A	03/20/2008 10:00	AUGUST	<5.6	mg/L	5
<b>28030287-002</b> PVSC Disch C1						
Biochemical Oxygen Demand	SM 5210B	03/07/2008 16:30	JJANESKI	<4	mg/L	4
Total Suspended Solids (TSS)	SM 2540D	03/11/2008 8:00	JJANESKI	<3	mg/L	3
<b>28030287-003</b> PVSC Disch C2						
Cadmium	EPA 200.7	03/20/2008 11:59	MARKA	<0.002	mg/L	0.002
Copper	EPA 200.7	03/20/2008 11:59	MARKA	0.02	mg/L	0.01
Lead	EPA 200.7	03/20/2008 11:59	MARKA	<0.01	mg/L	0.01
Mercury	EPA 245.1	03/20/2008 14:00	ASTOICA	<0.0005	mg/L	0.0005
Nickel	EPA 200.7	03/20/2008 11:59	MARKA	<0.005	mg/L	0.005
Zinc	EPA 200.7	03/20/2008 11:59	MARKA	<0.03	mg/L	0.03

MONITORING PERIOD					
3	01	08	3	31	08
MO	DAY	YR	MO	DAY	YR
START			END		

SA: See attached report

  
Brian Wood  
Laboratory Director

QA

1275 BLOOMFIELD AVENUE, BLDG. 6, FAIRFIELD, NJ 07004 TEL 973 227 0422 FAX 973 227 2813





AQUA PRO-TECH LABORATORIES

## CERTIFICATIONS

NJ DEP 07010 / NY DOH 11634 / CT PH-0233

US ARMY CORPS (USACE)

## ANALYTICAL RESULTS SUMMARY

**Client** Lummus Technology Inc-PVSC  
 1515 Broad Street  
**Contact** Bloomfield, NJ 07003-3096  
 Maryann Link  
**Project**  
**Report Date** 04/04/2008 16:01

**APL Order ID Number** 28030781  
**Date Sampled** 03/20/2008 9:00  
**Date Received** 03/20/2008 4:30  
**Matrix** Wastewater  
**Site** PVSC Disch  
**Customer Service Rep.**

Sample Number/ Parameter	Method	Analysis Time	Analyst	Result	Units	MDL
<b>28030781-001</b>	C1 PVSC Indust Disch					
Total Solids	SM 2540B	03/24/2008 10:00	MARK	150	mg/L	3
<b>28030781-002</b>	C2 PVSC Indust Disch					
Ammonia, as Nitrogen	EPA 350.2	03/26/2008 14:00	YKIZNER	<0.2	mg/L	0.2
Chemical Oxygen Demand	SM 5220D	03/31/2008 11:00	ASTOICA	<5	mg/L	5
Total Organic Carbon	EPA 415.1	03/24/2008 17:00	RSWAMY	1.9	mg/L	0.5
<b>28030781-003</b>	Grab 1 PVSC Insust Disch					
Oil & Grease	EPA 1664A	04/03/2008 10:00	AUGUST	<9.4	mg/L	5
<b>28030781-004</b>	C3 PVSC Indust Disch					
Cadmium	EPA 200.7	04/03/2008 12:17	MARK	<0.002	mg/L	0.002
Chromium	EPA 200.7	04/03/2008 12:17	MARK	<0.01	mg/L	0.01
Copper	EPA 200.7	04/03/2008 12:17	MARK	<0.01	mg/L	0.01
Lead	EPA 200.7	04/03/2008 12:17	MARK	<0.010	mg/L	0.01
Mercury	EPA 245.1	04/02/2008 15:30	ASTOICA	<0.0005	mg/L	0.0005
Nickel	EPA 200.7	04/03/2008 12:17	MARK	<0.005	mg/L	0.005
Zinc	EPA 200.7	04/03/2008 12:17	MARK	0.031	mg/L	0.03

SA: See attached report

**Brian Wood**  
Laboratory Director

QA

1275 BLOOMFIELD AVENUE, BLDG. 6, FAIRFIELD, NJ 07004 TEL 973 227 0422 FAX 973 227 2813

# APL

## AQUA PRO-TECH LABORATORIES

Certified Environmental Testing

1275 BLOOMFIELD AVENUE • BUILDING 6  
FAIRFIELD, NEW JERSEY 07004

TEL: 973.227.0422

FAX: 973.227.2813

www.aquaprotechlabs.com

### CONTAMINATION LEVEL

☐ HIGH ☐ MEDIUM ☐ LOW

CUSTOMER: Luminus Technology  
ADDRESS: 1515 Broad St.  
PHONE: Bloomfield, NJ 07003  
FAX: 973 893 2867  
PROJECT NAME: PVSC Ind. Disch.  
PROJECT MGR: M. Link  
P.O. NUMBER

SEND REPORT TO: SAME  
ADDRESS:  
PHONE:  
FAX:  
SEND INVOICE TO:  
ADDRESS:  
SAMPLED BY:

### CHAIN OF CUSTODY

PAGE 1 OF 1

#### TURNAROUND TIME

☒ APL STANDARD in 2 weeks  
☐ RUSH turnaround available upon request and lab approval

#### REPORT FORMAT

☒ RESULTS ONLY  
☐ NJ DEP REDUCED DELIVERABLES  
☐ NJ DEP FULL DELIVERABLES  
☐ ELECTRONIC DATA DELIVERY

SRP#

☐ STATE FORMS NEEDED

MATRIX ABBREVIATIONS: D - DRINKING WATER G - GROUNDWATER W - WASTEWATER S - SOIL SL - SLUDGE P - POOL L - LAKE

APL LAB ID#	SAMPLE SOURCE: FIELD ID	DATE	TIME	SAMPLE TYPE: G R A B	W A T E R	NO. OF BOTTLES	PRESERVATIVE	ANALYSIS REQUESTED
28030781-001	C1-PVSC Indust. Disch	Mar 19-20-2008	0900-0900	✓	W	1	None	Total Solids
002	C2-PVSC Indust. Disch	Mar 19-20-2008	0900-0900	✓	W	1	H2SO4	COD, TOC, Ammonia (N)
003	GRAB-1 PVSC Indust. Disch	Mar 20-2008	0900	✓	W	1	H2SO4	Total Oil and Grease
004	C3-PVSC Indust. Disch	Mar 19-20-2008	0900-0900	✓	W	1	HNO3	Cd, Cr (total), Cu, Lead (Pb), Ni, Zn, Mercury (Hg)

RELINQUISHED BY (Print) DONALD T. TRAYLOR DATE 20 MAR 2008 RECEIVED BY (Print) [Signature] DATE 20 MAR 2008  
Signature/Agent of: [Signature] Time 2:00 AM PM  
RELINQUISHED BY (Print) [Signature] DATE 20 MAR 2008 RECEIVED BY (Print) [Signature] DATE 20 MAR 2008  
Signature/Agent of: [Signature] Time 3:00 PM  
RELINQUISHED BY (Print) [Signature] DATE 20 MAR 2008 RECEIVED BY (Print) [Signature] DATE 20 MAR 2008  
Signature/Agent of: [Signature] Time 3:00 PM  
RELINQUISHED BY (Print) [Signature] DATE 20 MAR 2008 RECEIVED BY (Print) [Signature] DATE 20 MAR 2008  
Signature/Agent of: [Signature] Time 3:00 PM  
COMMENTS/SPECIAL INSTRUCTIONS: 301  
Cooler Temp. upon receipt at lab

CERTIFICATIONS: NELAP (National Environmental Laboratory Accreditation Program) NJDEP #07010 • NYDOH #11634 CTPH #0233 US ARMY  
By signing this Chain of Custody Agreement, customer expressly agrees to pay APL for all charges, reasonably incurred in connection with analysis and reporting for your sample

Project Name: PVSC Discharge Location: PVSC Industrial Sampler  
Sampled by: M. C. 10/10

[illegible]

Relinquished by:	PRINT	Date:	Accepted by:	PRINT	Date:
Signature	Mary Anne Link Mary Anne Link	4/14/08 2:00 PM	Signature	Cayless W. Gooding Cayless W. Gooding	4/14/08 2:00 PM
Relinquished by:	PRINT	Date:	Accepted by:	PRINT	Date:
Signature			Signature		
Relinquished by:	PRINT	Date:	Accepted by:	PRINT	Date:
Signature			Signature		

**Lummus Technology**  
**1515 Broad Street; Bloomfield, NJ 07003**

Lummus Technology  
Technology Development Center  
Bloomfield, New Jersey  
NJDEP Laboratory Certification ID # 07577



## pH CALIBRATION and MEASUREMENT WORKSHEET

**Calibration:**

Date and Time:

4/14/08

Analyst / Operator:

*[Signature]*

pH Instrument:

pH continuous, monitoring meter

pH Buffer:	Temp., °F	pH, Standard Units
4.00		
7.00	66.2	7.05
10.00		

**Buffer solutions used:**

pH:	Lab. ID	Expiration
4.00		
7.00	4554	4/2008
10.00		

**Measurements:**

Check Standard:	Temp., °F	pH, Standard Units
4.00		
7.00	66.2	7.02
10.00		

**Comments / Notes:**

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Samples:	Temp., °F	pH, Standard Units	Time taken	Time Analyzed
PVSC1	62.0	6.65	2:06	2:16

**Lummus Technology Development Center**

Lummus Technology

1515 Broad Street  
Bloomfield, NJ 07003-3096  
USA

Tel. (973) 893-1515  
Fax (973) 893-2745



PAGE 1

*State of Delaware*  
*Office of the Secretary of State*

I, EDWARD J. FREEL, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF INCORPORATION OF "THE LUMMUS COMPANY", FILED IN THIS OFFICE ON THE NINETEENTH DAY OF DECEMBER, A.D. 1930, AT 1 O'CLOCK P.M.



*Edward J. Freel*  
Edward J. Freel, Secretary of State

0292822 8100

944129084

AUTHENTICATION:

DATE:

7179906

12-19-30

CERTIFICATE OF INCORPORATION  
OF  
THE LUMMUS COMPANY.

ARTICLE I.

The name of this corporation is The Lummus Company.

ARTICLE II.

Its principal office in the State of Delaware is located at No. 100 West Tenth Street, in the City of Wilmington, County of New Castle. The name and address of its resident agent is The Corporation Trust Company, No. 100 West Tenth Street, Wilmington, Delaware.

ARTICLE III.

The nature of the business of the corporation and the objects or purposes proposed to be transacted, promoted or carried on by it are:

(a) To design, invent, manufacture, construct, purchase import, assemble, equip, repair, hold, own, use, operate, mortgage pledge, sell, distribute, exchange, export or otherwise deal in and turn to account, condensers, distillers, separators, conveyors and other appliances, devices, machinery and equipment of every kind and character for producing, distilling, condensing, refining

-2-

manufacturing, storing, transporting and distributing products and by-products of petroleum and chemicals and chemical compounds of every kind and nature, together with all parts, accessories and appliances of every kind which in anywise appertain thereto or which can or may be used in connection therewith.

(b) To conduct a general foundry and machine shop business and engage in the manufacture of implements, tools, hardware, castings, forgings, machinery and other equipment of every kind and description which can or may be made from iron or steel or any other metal or combination of metals.

(c) To conduct a general steel and iron manufacturing, jobbing, fabricating, machinery and supply business and to that end to purchase, manufacture, fabricate, sell and otherwise deal in and dispose of all kinds and combinations of steel, iron and/or other metals and in any commodity or product whatsoever of which iron or steel or any other metal forms the whole or a substantial part.

(d) To manufacture, purchase, import or otherwise acquire, sell, distribute, export and otherwise deal in and turn to account pottery, porcelain ware, china ware, glass ware and any other commodity or product whatsoever of which clay, sand, feldspar, quartz or any other mineral forms the whole or a substantial part.

(e) To manufacture, construct, purchase, import or otherwise acquire, hold, own, use, mortgage, pledge, sell, distribute, exchange, export or otherwise deal in and turn to account materials, supplies and other personal property of every

-3-

kind and nature which can or may be advantageously dealt in by the corporation in connection with any business it is authorized to conduct, and in general to buy, sell, trade in, deal with and turn to account goods, wares and merchandise of every class and description.

(f) To manufacture, purchase, import or otherwise acquire, sell, distribute, export and otherwise deal in and turn to account chemicals and chemical compounds of every kind and character.

(g) To produce, refine and market petroleum, oil, natural gas and other volatile mineral substances of every kind and character.

(h) To engage in the business of mechanical, chemical, electrical and/or mining engineers and to do and perform any work of any kind which in any wise appertains thereto or to any thereof.

(i) To purchase, lease or otherwise acquire, hold, own, improve, develop, mortgage, pledge, lease, use, operate, sell, convey, exchange or otherwise deal in and turn to account such real estate, leaseholds, mineral rights, mineral claims, concessions, franchises, oil and gas wells, refineries, storage tanks, pipe lines, buildings, factories, workshops, machine shops, mills, furnaces, foundries, laboratories, warehouses, offices, stores, distributing stations, forges, machinery, equipment and other personal property of every kind and nature whatsoever as may be necessary, useful or convenient in connection

-4-

with the business of the corporation.

(j) To enter into, make and perform contracts of every kind and description with any person, firm, association, corporation, municipality, county, state, body politic or government or colony or dependency thereof.

(k) To apply for, obtain, register, purchase, lease, license or otherwise acquire; to hold, own, use, exercise, operate, develop, introduce, grant licenses in respect of, mortgage, sell, assign or otherwise dispose of or turn to account letters patent of the United States or any foreign country, patent rights, licenses, privileges, inventions, devices, improvements, formulae, concessions, processes, copyrights, trademarks, and/or trade names granted by, recognized or otherwise existing under the laws of the United States or any foreign country.

(l) To purchase or otherwise acquire the whole or any part of the property, assets, business, good will and rights and to undertake or assume the whole or any part of the bonds, mortgages, franchises, leases, contracts, indebtedness, guarantees, liabilities and obligations of any person, firm, association, corporation or organization, and to pay for the same or any part thereof in cash, shares of the capital stock, bonds, debentures, debenture stock, notes, or other obligations of the corporation or otherwise, or by undertaking and assuming the whole or any part of the liabilities or obligations of the transferror; and to hold or in any manner dispose of the whole or any part of the property and assets so acquired, and to

-5-

conduct in any lawful manner the whole or any part of the business so acquired and to exercise all the powers necessary or convenient in and about the conduct, management and carrying on of such business.

(m) To borrow money and to issue bonds, debentures, debenture stock, notes or other obligations of the corporation from time to time, for any of the objects or purposes of the corporation, and to secure the same by mortgage, pledge or deed of trust of any or of all its property or otherwise.

(n) To purchase, hold, cancel, re-issue, sell, exchange, transfer or otherwise deal in shares of its own capital stock, bonds, or other obligations from time to time to such an extent and in such manner and upon such terms as its board of directors shall determine; provided the corporation shall not use its funds or property for the purchase of its own shares of capital stock when such use would cause any impairment of its capital; and provided further that shares of its own capital stock belonging to the corporation shall not be voted upon directly or indirectly.

(o) To purchase, subscribe for, acquire, own, hold, sell, exchange, assign, transfer, mortgage, pledge or otherwise dispose of shares or voting trust certificates for shares of the capital stock, or any bonds, notes, securities or evidences of indebtedness created by any other corporation or corporations organized under the laws of this state or any other state or district or country, nation or government and also bonds or

-6-

evidences of indebtedness of the United States or of any state, district, territory, dependency or country or subdivision or municipality thereof; to issue in exchange therefor shares of the capital stock, bonds, notes or other obligations of this corporation and while the owner thereof to exercise all the rights, powers and privileges of ownership including the right to vote on any shares of stock or voting trust certificates so owned; to promote, lend money to and guarantee the dividends, stocks, bonds, notes, evidences of indebtedness, contracts or other obligations of and otherwise aid in any manner which shall be lawful any corporation or association of which any bonds, stocks, voting trust certificates or other securities or evidence of indebtedness shall be held by or for this corporation, or in which, or in the welfare of which, this corporation shall have any interest, and to do any acts and things permitted by law and designed to protect, preserve, improve or enhance the value of any such bonds, stocks or other securities or evidences of indebtedness or the property of this corporation.

(p) To organize or cause to be organized under the laws of the State of Delaware, or of any other state, district, territory, nation, colony, province or government, a corporation or corporations for the purpose of accomplishing any or all of the objects for which this corporation is organized, and to dissolve, wind up, liquidate, merge or consolidate any such corporation or corporations or to cause the same to be dissolved, wound up, liquidated, merged or consolidated.

-7-

(q) In general, to carry on any other lawful business whatsoever in connection with the foregoing or which is calculated directly or indirectly to promote the interest of the corporation or to enhance the value of its properties and to have and exercise all the rights, powers and privileges, which are now or may hereafter be conferred by the laws of Delaware upon corporations formed under the act hereinafter referred to; to execute, from time to time, general or special powers of attorney to persons, firms, associations or corporations either in the United States or in any other country, state or locality, and to revoke the same as and when the Board of Directors may determine; and to do any or all of the things hereinbefore set forth in any part of the world either alone as principal, agent or trustee, or in conjunction with others, to the same extent as natural persons might or could do.

(r) To have one or more offices, to carry on all or any of its operations and business, and, without restriction or limit as to amount, to purchase or otherwise acquire, hold, own, mortgage, sell, convey, or otherwise dispose of real and personal property of every class and description, in any of the states, districts, territories, colonies and possessions of the United States, and in any and all foreign countries, subject to the laws of such State, District, Territory, Colony or Country.

(s) The foregoing clauses shall be construed both as objects and powers; and it is hereby expressly provided that the foregoing enumeration of specific powers shall not be held to



-8-

limit or restrict in any manner the powers of the corporation; and it is the intention that the purposes, objects and powers specified in each of the clauses of this Article III of this Certificate of Incorporation, shall, except as otherwise expressly provided, in no wise be limited or restricted by reference to or inference from the terms of any other clause of this Article or of any other Article of this Certificate of Incorporation, but that each of the purposes, objects and powers specified in this Article and each of the Articles or clauses of this Certificate of Incorporation shall be regarded as independent purposes, objects and powers.

#### ARTICLE IV.

The total number of shares of stock which the corporation shall have authority to issue is One Hundred Thousand (100,000). All of said shares shall be without nominal or par value and any and all thereof may be issued by the corporation from time to time to such persons, firms or corporations, in such amounts, for such consideration and upon such terms and conditions as from time to time may be determined by resolution of the Board of Directors. Any and all shares so issued for which the consideration so fixed has been paid or delivered shall be deemed full paid stock and shall not be liable to any further call or assessments thereon, and the holders of such shares shall not be liable for any further payments in respect thereto.

-9-

The Board of Directors may also from time to time determine by resolution what part of the consideration which the corporation may receive for any shares of its capital stock so issued by it from time to time shall be capital and what part thereof shall be surplus.

ARTICLE V.

The amount of capital with which the corporation will commence business is One Thousand Dollars (\$1,000.00).

ARTICLE VI.

The names and places of residence of the incorporators are as follows:

<u>Name</u>	<u>Residence</u>
L. E. Gray	Wilmington, Delaware
H. E. Grantland	Wilmington, Delaware
H. H. Snow	Wilmington, Delaware

ARTICLE VII.

The corporation is to have perpetual existence.

ARTICLE VIII.

The private property of the stockholders shall not be subject to the payment of corporate debts to any extent whatsoever.

-10-

ARTICLE IX.

In furtherance and not in limitation of the powers conferred by the laws of the State of Delaware, the Board of Directors is expressly authorized:

To make, alter, amend or repeal the by-laws of the corporation by a vote of a majority of all the directors at any duly convened meeting of the Board; but any by-laws so made or otherwise promulgated, may be altered or repealed and new by-laws made by the stockholders at any duly convened meeting thereof.

To fix from time to time the amount of the profits of the corporation to be reserved as working capital or for any other lawful purpose.

To make regulations from time to time for closing the corporation's stock transfer books and for fixing the date or dates as of which the lists of stockholders entitled to vote at any meeting shall be prepared.

To designate, if a resolution passed by a majority of the whole Board of Directors so provides, two or more of their number to constitute an Executive Committee, which Committee shall, for the time being, as provided in said resolution or in the By-laws of the corporation, have and may exercise any or all of the powers of the Board of Directors in the management of the business and affairs of the corporation and have power to authorize the seal of the corporation to be affixed to all papers which may require it.

-11-

To determine from time to time whether and to what extent and at what times and places and under what conditions and regulations the accounts and books of the corporation, (other than the stock ledger), or any of them, shall be open to the inspection of the stockholders; and no stockholder shall have any right to inspect any account or book or document of the corporation except as conferred by the laws of the State of Delaware, unless and until authorized so to do by resolution of the Board of Directors, or of the stockholders.

To authorize and cause to be executed mortgages and liens, without limit as to amount, on the real and personal property of the corporation.

To sell, exchange, assign, convey or otherwise dispose of a part of the property, assets and effects of the corporation less than the whole or less than substantially the whole thereof, on such terms and conditions as they shall deem advisable without the assent of the stockholders in writing or otherwise.

From time to time, to provide, maintain, carry out, revise, amend, alter, change, recall, abolish, nullify or repeal a plan or plans for the participation, by all or any of the employees (including officers and directors) of the corporation or of any corporation in which or in the welfare of which this corporation has any interest, in the profits of the corporation as part of its legitimate expenses and for furnishing to such employees, or any of them, at the corporation's expense, of medical services, insurance against accident, sickness or death, pensions during old age, disability or unemployment, education, housing,

-15-

social services, recreation or other similar aids for their relief or general welfare, in such manner and upon such terms and conditions as may be determined by the Board of Directors.

Pursuant to the affirmative vote of the holders of a majority of the shares of capital stock issued and outstanding, having voting power, given at a stockholder's meeting duly called for that purpose, or when authorized by the written consent of the holders of a majority of the voting stock issued and outstanding, the Board of Directors shall have power and authority at any meeting to sell, lease or exchange all of the property and assets of the corporation, including its good will and its corporate franchises, upon such terms and conditions as the Board of Directors shall deem expedient and for the best interests of the corporation.

In addition to the power and authority hereinbefore or by statute expressly conferred upon them, the Directors may exercise all such powers and do all such acts and things as may be exercised or done by the corporation, subject, nevertheless, to the provisions of the laws of the State of Delaware, of this Certificate and of the By-laws of the corporation.

#### ARTICLE X.

If the By-laws so provide, both the stockholders and the Board of Directors shall have power to hold their meetings and to have one or more offices within or without the State of Delaware and to keep the books of the corporation (subject to

-13-

the provisions of the laws of Delaware) at such place or places outside of the State of Delaware, as the Board of Directors may from time to time designate.

The corporation may in its By-Laws confer powers upon its Directors in addition to the foregoing, and in addition to the powers and authorities expressly conferred upon them by the laws of Delaware.

ARTICLE XI.

The corporation reserves the right to amend, alter, change or repeal any provision contained in this Certificate of Incorporation in the manner now or hereafter prescribed by law, and all rights and powers conferred herein on stockholders, directors and officers are subject to this reserved power.

WE, THE UNDERSIGNED, being each of the incorporators hereinbefore named for the purpose of forming a corporation to do business both within and without the State of Delaware, and in pursuance of the General Corporation Law of the State of Delaware, being Chapter 65 of the Revised Code of Delaware, and the acts amendatory thereof and supplemental thereto, do make this certificate, hereby declaring and certifying that

-14-

the facts herein stated are true, and accordingly have here-  
unto set our hands and seals this 19th day of December,  
A. D. 1930.

In Presence of

Herbert E. Latter

L. E. Gray (SE)

H. E. Grantland (SA)

H. H. Snow (SA)

STATE OF DELAWARE,       )  
                                  ) SS.  
COUNTY OF NEW CASTLE.   )

BE IT REMEMBERED, That on this     19th           day  
of December, A. D. 1930, personally came before me , Herbert  
E. Latter,           a Notary Public for the State of Delaware,  
L. E. Gray, H. E. Grantland and H. H. Snow,  
all of the parties to the foregoing Certificate of Incorporation,  
known to me personally to be such, and severally acknowledged  
the said Certificate to be the act and deed of the signers re-  
spectively and that the facts therein stated are truly set forth.

GIVEN under my hand and seal of office the day and  
year aforesaid.

Herbert E. Latter  
Notary Public.

Herbert E. Latter  
Notary Public  
Appointed Feb. 23, 1929  
State of Delaware  
Term Two Years



PAGE 1

*Office of Delaware*  
*Office of the Secretary of State*

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I, EDWARD J. FREEL, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF AMENDMENT OF "THE LUMMUS COMPANY", CHANGING ITS NAME FROM "THE LUMMUS COMPANY" TO "LUMMUS CREST INC.", FILED IN THIS OFFICE ON THE TWENTY-THIRD DAY OF DECEMBER, A.D. 1983, AT 10 O'CLOCK A.M.



A handwritten signature in cursive script, reading "Edward J. Freel".

Edward J. Freel, Secretary of State

0292822 8100

944129084

AUTHENTICATION:

DATE:

7179907

12-23-83

CERTIFICATE OF AMENDMENT  
OF  
CERTIFICATE OF INCORPORATION  
OF  
THE LUMMUS COMPANY

\* \* \* \* \*

The Lummus Company, a corporation organized and existing under and by virtue of the General Corporation Law of the State of Delaware, DOES HEREBY CERTIFY:

FIRST: That the Board of Directors of said corporation, at a meeting duly held, adopted a resolution proposing and declaring advisable the following amendment to the Certificate of Incorporation of said corporation:

RESOLVED, that the Certificate of Incorporation of The Lummus Company be amended by changing the first Article thereof so that, as amended, said Article shall be and read as follows:

"1. The name of this corporation is Lummus Crest Inc."

SECOND: That in lieu of a meeting and vote of stockholders, the stockholders have given unanimous written consent to said amendment in accordance with the provisions of Section 228 of the General Corporation Law of the State of Delaware.

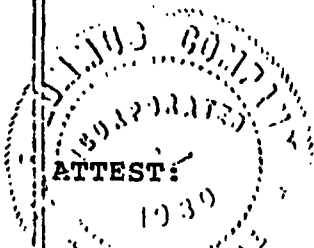
THIRD: That the aforesaid amendment was duly adopted in accordance with the applicable provisions of Sections 242 and 228 of the General Corporation Law of the State of Delaware.

-2-

IN WITNESS WHEREOF, said The Lummus Company has caused this certificate to be signed by J. C. Butt, its Vice President and Controller, and attested by J. R. Kaye, its Secretary, this 21st day of December, 1983.

The Lummus Company

By J. C. Butt  
J. C. Butt  
Vice President and Controller



By J. R. Kaye  
J. R. Kaye  
Secretary

PAGE 1

*of Delaware*  
*of the Secretary of State*

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I, EDWARD J. FREEL, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF AMENDMENT OF "LUMMUS CREST INC.", CHANGING ITS NAME FROM "LUMMUS CREST INC." TO "ABB LUMMUS CREST INC.", FILED IN THIS OFFICE ON THE NINETEENTH DAY OF MARCH, A.D. 1990, AT 10 O'CLOCK A.M.



*Edward J. Freel*  
\_\_\_\_\_  
Edward J. Freel, Secretary of State

0292822 81

944129084

AUTHENTICATION:

DATE:

7179908

3-19-60

## CERTIFICATE OF AMENDMENT

OF

## CERTIFICATE OF INCORPORATION

\* \* \* \* \*

Lummus Crest Inc., a corporation organized and existing under and by virtue of the General Corporation Law of the State of Delaware, DOES HEREBY CERTIFY:

FIRST: That the Board of Directors of said corporation adopted a resolution proposing and declaring advisable the following amendment to the Certificate of Incorporation of said corporation:

RESOLVED, that the Certificate of Incorporation of Lummus Crest Inc. be amended by changing the first Article thereof so that, as amended, said Article shall be and read as follows:

"1. The name of this corporation is ABB Lummus Crest Inc."

SECOND: That in lieu of a meeting and vote of stockholders, the stockholders have given unanimous written consent to said amendment in accordance with the provisions of section 228 of the General Corporation Law of the State of Delaware.

THIRD: That the aforesaid amendment was duly adopted in accordance with the applicable provisions of sections 242 and 228 of the General Corporation Law of the State of Delaware.

- 2 -

IN WITNESS WHEREOF, said Lummus Crest Inc. has caused this certificate to be signed by S. M. Solomon, its President, and attested by J. J. O'Connor, its Secretary this 12th day of March, 1990.

LUMMUS CREST INC.

By S. M. Solomon  
President

ATTEST:

By J. J. O'Connor  
Secretary

## State of Delaware

PAGE 1

## Office of the Secretary of State

I, EDWARD J. FREEL, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF AMENDMENT OF "ABB LUMMUS CREST INC.", CHANGING ITS NAME FROM "ABB LUMMUS CREST INC." TO "ABB LUMMUS GLOBAL INC.", FILED IN THIS OFFICE ON THE NINTH DAY OF MAY, A.D. 1995, AT 4:30 O'CLOCK P.M.

A CERTIFIED COPY OF THIS CERTIFICATE HAS BEEN FORWARDED TO THE NEW CASTLE COUNTY RECORDER OF DEEDS FOR RECORDING.



A handwritten signature in cursive script, reading "Edward J. Freel".

Edward J. Freel, Secretary of State

0292822 8100

AUTHENTICATION:

7502371

950103033

DATE:

CERTIFICATE OF AMENDMENT  
OF  
CERTIFICATE OF INCORPORATION

ABB Lummus Crest Inc., a corporation organized and existing under and by virtue of the General Corporation Law of the State of Delaware, through its Vice President and Chief Financial Officer,

DOES HEREBY CERTIFY:

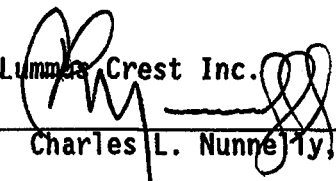
FIRST: That the Board of Directors of said corporation, at a meeting duly held, adopted a resolution proposing and declaring advisable the following amendment to the Certificate of Incorporation of said corporation:

RESOLVED, that the Certificate of Incorporation of ABB Lummus Crest Inc. be amended by changing the first Article thereof so that, as amended, said Article shall be and read as follows:

"The name of this corporation is ABB Lummus Global Inc."

SECOND: That the aforesaid amendment was duly adopted in accordance with the applicable provisions of Section 242 of the General Corporation Law of the State of Delaware.

IN WITNESS WHEREOF, said corporation has caused this certificate to be signed by Charles L. Nunnelly, Jr., Vice President and Chief Financial Officer, and attested by Joseph C. O'Connor its Assistant Secretary this 8<sup>th</sup> day of May, 1995.

ABB Lummus Crest Inc.  
By:   
Charles L. Nunnelly, Jr.

Title: Vice President and  
Chief Financial Officer

ATTEST:

BY:   
Joseph C. O'Connor

Title: Assistant Secretary

C:WM8548



# Delaware

PAGE 1

*The First State*

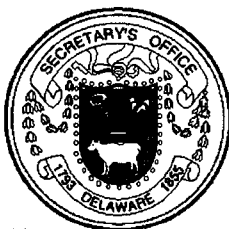
I, HARRIET SMITH WINDSOR, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF AMENDMENT OF "ABB LUMMUS GLOBAL INC.", CHANGING ITS NAME FROM "ABB LUMMUS GLOBAL INC." TO "LUMMUS TECHNOLOGY INC.", FILED IN THIS OFFICE ON THE SIXTEENTH DAY OF NOVEMBER, A.D. 2007, AT 3:45 O'CLOCK P.M.

A FILED COPY OF THIS CERTIFICATE HAS BEEN FORWARDED TO THE NEW CASTLE COUNTY RECORDER OF DEEDS.

0292822 8100

071233830

You may verify this certificate online  
at [corp.delaware.gov/authver.shtml](http://corp.delaware.gov/authver.shtml)



*Harriet Smith Windsor*

Harriet Smith Windsor, Secretary of State

AUTHENTICATION: 6173111

DATE: 11-19-07

State of Delaware  
Secretary of State  
Division of Corporations  
Delivered 04:30 PM 11/16/2007  
FILED 03:45 PM 11/16/2007  
SRV 071233830 - 0292822 FILE

**ABB LUMMUS GLOBAL, INC.**

**Certificate of Amendment  
to  
Certificate of Incorporation**

ABB Lummus Global, Inc., a corporation organized and existing under and by virtue of the General Corporation Law of the State of Delaware (the "Corporation"), does hereby certify:

FIRST: That the Board of Directors of the Corporation, by unanimous consent dated November 16, 2007, unanimously adopted resolutions proposing and declaring advisable the following amendment to the Certificate of Incorporation of the Corporation:

Article 1 of the Certificate of Incorporation of the Corporation shall be amended to read in its entirety as follows:

"First: The name of the Corporation is Lummus Technology Inc."

SECOND: That in lieu of a meeting and vote of stockholders, the sole stockholder has given unanimous written consent to said amendment in accordance with the provisions of Section 228 of the General Corporation Law of the State of Delaware.

THIRD: That the aforesaid amendment was duly adopted in accordance with the applicable provisions of Section 242 of the General Corporation Law of the State of Delaware.

IN WITNESS WHEREOF, the Corporation has caused this Certificate to be signed by Margaret Duplantier, this 16 day of November, 2007.

ABB LUMMUS GLOBAL, INC.

By:   
Name: Margaret Duplantier  
Title: Senior Vice President, General Counsel  
and Secretary